

OCCUPATIONAL ILLNESSES AND INJURIES DUE TO EXCESS
EXPOSURE TO PESTICIDES CONTAINING METHYL BROMIDE
REPORTED BY PHYSICIANS IN CALIFORNIA IN 1980

by

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SUMMARY

During 1980, California physicians reported 23 cases of occupational illnesses and injuries resulting from exposure to fumigants containing methyl bromide. Fourteen of the 23 cases were systemic illnesses, 1 was an eye injury, and 8 were skin injuries. The total number of occupational illnesses and injuries has decreased by approximately 45 percent; from 42 cases in 1979 to 23 cases in 1980. The number of days of disability, however, have doubled. The main reason for this increase is the high number of workdays lost by 3 individuals. One worker lost 30 days, another was off work 2 months, and the third worker lost 11 days. The days of hospitalization have also increased, from 8 days in 1979 to 20 days in 1980. The reason for the increase was long hospitalization of 2 of the 3 aforementioned individuals. The circumstances leading to the overexposures can be attributed primarily to inadequate employee training or carelessness. Overall, the severity of the illnesses and injuries was not great. The remaining 20 persons collectively lost 8 days of work, but did not require any hospitalization. Products involved in overexposures during 1980 were: Methyl Bromide 99.5, Dowfume MC-2, Pic-Brom 67, Tri-Con 75/25, Meth-O-Gas, and Terr-O-Gas 98.

INTRODUCTION

Methyl bromide is a widely used fumigant. It is used as a structural, commodity, soil, and nursery stock fumigant. It controls weeds, nematodes, insects, soil-borne diseases, termites, and rodents. Methyl bromide is extremely hazardous by vapor inhalation. It is one of the more dangerous pesticides in common use because of its toxicity and physical characteristics. When handling and applying methyl bromide, extreme caution should be exercised to guard against overexposure. Methyl bromide vaporizes at 40°F. at atmospheric pressure to a colorless and odorless gas which is detectable only by appropriate instruments. Workers may breathe air containing injurious or lethal concentrations of methyl bromide without their knowledge. The liquid formulation as well as the gas can cause eye and skin burns. Contact of the skin with liquid methyl bromide or high concentrations of the gas may cause an itching and prickling of the skin, followed by reddening and later formulation of vesicles and blisters which heal slowly. Severe burning of the cornea may result from contact of the liquid with the eyes. The onset of symptoms of acute poisoning may be delayed 4-6 hours or more. This poses a potentially dangerous situation. For this reason, hospitalization for observation of cases in which significant exposure has occurred is often advisable.

The 23 occupational exposures to methyl bromide that were reported by physicians as occurring in 1980 in California and the on-site follow-up investigation data assembled by county agricultural commissioner investigators were evaluated and summarized.

In addition to the initial on-site investigation, there was a second telephone survey in April 1981 of persons exposed to methyl bromide during 1980. The 5 questions asked each person in the telephone survey were designed to update and supplement the information appearing in either the Doctor's First Reports of Work Injury or the follow-up investigations conducted by the local county staff. The questions were: (1) How long were you in the hospital? (2) How long were you off work? (3) After the incident, how long before you felt completely normal? (4) How long did you receive physician's follow-up care? and (5) Do you have any residual symptoms?

Seventeen of the 23 exposed persons were contacted in the follow-up investigation conducted 4 to 15 months after the exposure; the remainder could not be located by telephone. The results are summarized in the following case studies.

CASE STUDIES

Systemic Illnesses -- 14 Cases

A field fumigator was putting soil around the perimeter of a tarp after Pic-Brom 67 had been injected into the soil. As he bent over to pull the plastic tarp taut, he inhaled some methyl bromide gas. His knees felt weak and he experienced a burning sensation in his chest. He was immediately taken to the hospital where he remained 29 hours for observation. He missed 2 days of work. An attempt was made to conduct a second telephone follow-up investigation; however, the employee could not be located.

Two employees were replacing a defective fitting on a methyl bromide cylinder. The cylinder was shut off and the lines purged the previous day. While removing the fitting, some methyl bromide squirted onto 1 employee, and the other inhaled some of the vapor. Both men developed chest discomfort and a mild cough. They went to see a physician who prescribed tetracycline to prevent pulmonary infection, and advised them to rest for 2-3 days. A second follow-up investigation was conducted by telephone 7 months later; 1 worker reported that he required 1 day off work, while the other did not require any. Both men stated that the symptoms of chest discomfort and cough subsided within 1 day. Neither has experienced any continuing or recurring problem. The employee that missed 1 day of work made an additional precautionary visit to the physician.

The day after a field was fumigated with Methyl Bromide 99.5 and the tarp was removed, a worker began using a skip loader to move the soil around. He inhaled some residual gas and developed a headache, chest pain, and general weakness. A second follow-up investigation was conducted by telephone 12 months later. He reported that he wore a dust mask, but no other protective clothing. He stated that following inhalation of some gas, he felt lightheaded. He was removed from the area and told to take deep breaths. He was taken to the hospital where he was given oxygen. The symptoms subsided within an hour. He did not miss any days from work. He was under a physician's follow-up care for 3 days. He did not experience any residual symptoms.

Following a soil fumigation at a nearby farm, the residents of the area telephoned the fire department, complaining of burning eyes, headaches, and nausea. The fire department responded to the call and identified the fumigant used as Terr-O-Gas 67/33 (methyl bromide and chloropicrin). A house-to-house alert was made within a 3-block area to determine the extent of exposure. Those who had a reaction to the stated exposure were advised to seek medical attention. Four firemen developed symptoms of burning eyes and headaches, and consulted a physician whose diagnosis was pesticide poisoning. A second follow-up investigation was conducted by telephone 7 months later. The firemen stated they went to a physician as a precautionary measure. No workdays were lost. The symptoms subsided within a day and they all reported to work the following day. None of the firemen experienced residual symptoms due to methyl bromide exposure.

After arriving at work, three warehouse workers complained of breathing difficulty which progressed into dizziness and nausea. The supervisor investigated, and discovered a methyl bromide cylinder that appeared to be leaking from one of the nozzles of the closed system attached to the cylinder. The cylinder was immediately moved to the truck parking lot. At the same time, a general evacuation of the dock area was made. It was determined that a trailer parked at the dock had been opened by unauthorized personnel. This trailer was in the process of being fumigated, with warning signs posted. The workers were sent to a clinic for examination. One worker complained of difficult breathing, a slight sore throat, and a headache; he was sent home and advised to avoid exertion. The other worker experienced nausea and dizziness, and was advised to avoid noxious fumes for 1-2 days and return to the clinic if necessary. The third worker stated he went to the clinic 2 days later as a precaution. He had had a

temperature of 103°F. the previous day. A second follow-up investigation was conducted by telephone 7 months later. Only 1 employee could be located. He stated that he had been off work 1 day, his fever had subsided within a day, and he had returned to work the following day. He has not experienced any residual symptoms. No further medical attention was required.

Three policemen responded to complaints received from residents adjacent to a field which had been fumigated earlier that day. The officers drove to a tarped field, but could not find any signs posted that would indicate what was used. They conducted a house-to-house evacuation of residences 200-300 yards away from the fumigated field. It was later determined that the fumigant was Tri-Con 75/25 (methyl bromide/chloropicrin). Four or 5 tarp leaks were detected with halide gas detectors. The officers experienced symptoms of burning eyes, nausea, and headaches. They were told to go to a physician for examinations; the diagnosis was possible methyl bromide exposure. Methyl bromide tests were conducted; they were negative. Second follow-up investigations were conducted by telephone 7 months later. None of the 3 officers required days off from work. The duration of symptoms ranged from less than 1 day to 2 days. None of the officers complained of residual symptoms. No follow-up care was required.

Eye Injuries -- 1 Case

A custodian of a school was exposed to methyl bromide gas which was used to fumigate a classroom. The room was taped up and the methyl bromide was injected. The room was posted for 24 hours, after which the tape was removed and the room aerated. The custodian entered the room and began to work. After 2 hours, his eyes began to hurt and become red. He went to see a physician, whose diagnosis was chemical conjunctivitis. He was advised to rest 2 days. A second follow-up investigation was conducted by telephone 15 months later. The employee stated that he was off work 1 day. The redness in his eyes lasted 2-3 days; he did not require any follow-up medical care.

Skin Injuries - 8 Cases

An employee was told to clear the fruit on a conveyer belt 2 hours after Meth-0-Gas had been applied; the conveyor belt was in a pit area. Later, the employee's feet started to burn, so he went to a hospital. He was washed down and prescribed an ointment to apply on his feet. He was told to return if his condition worsened; he returned the next day with first and second degree burns on his feet and legs. He was admitted to the hospital where he remained 13 days. He lost 30 days of work. An attempt was made to contact the employee by telephone to conduct a second follow-up investigation; however, he could not be located.

A field fumigator was treating soil around almond tree sites with Methyl Bromide 99.5. While he was using the probe to inject the fumigant into the ground, he tapped the probe on the side of his foot to clean off the dirt. When he did so, some methyl bromide contacted his boots. He developed second and third degree burns on his foot. He sought medical

attention 3 days after his initial exposure. His condition became complicated by cellulitis. He was admitted to the hospital where he remained 7 days. He lost 11 days of work. A second follow-up investigation was conducted by telephone 4 months later. The employee is no longer employed and has since move to Mexico. According to his employer, the employee was under physician's follow-up care for approximately 1 week after leaving the hospital. The employer also stated the employee did not complain of any residual symptoms after his return to work.

A structural pest control operator was fumigating a house with Methyl Bromide 99.5; the hose broke, causing the chemical to contact his right leg and foot. His supervisor instructed him to wash his leg and foot. The employee washed his leg, but did not wash his foot because he did not feel it had been affected. Two hours later, he complained of a "hot feeling" in his shoe. His employer told him to go to the medical care facility. He did not seek medical attention until 2 weeks later. By that time, he had sustained moderate to severe chemical burns. The doctor debrided and dressed his wounds. A second follow-up investigation was conducted by telephone 8 months later. He then said that although he was off work approximately 2 months, he did not require any hospitalization. He was in discomfort for a week and under a physician's care 2 months; he returned to work after receiving medical approval. He still complained of intermittent irritation and itching of his right leg and foot; however, he was back to work and no longer under a physician's care at the time of the 8-month follow-up.

An employee was fumigating preplant walnut and cherry tree holes with Terr-O-Gas. As he pulled the probe out of the ground to move to the next tree hole, some of the material had not been injected, and it dripped onto his leather boots. No protective clothing was provided. During the night, his left foot became red and warm. By the next morning, he had developed blisters, and consulted a physician whose diagnosis was chemical dermatitis with secondary infection. His foot was debrided and he was given a topical ointment. A second follow-up investigation was conducted by telephone 11 months later. The employee stated that he lost 3 days of work and the dermatitis had cleared up in approximately a week. He did not experience any residual symptoms; therefore, no follow-up medical treatment was sought.

A ranch manager was fumigating tree mounds when the probe broke and sprayed methyl bromide on his face. He was wearing a respirator; therefore, he did not inhale any of the material. He immediately washed himself with soap and water, and took a shower before going to see a physician. The physician's diagnosis was chemical burns about the right eye, forehead, and right cheek, with no blistering. He was prescribed an ointment to apply to the affected areas of his face. A second follow-up investigation was conducted by telephone 4 months later. The employee said he lost no days from work; he stated the burning sensation had lasted 1 day. He was prescribed an ointment which he applied for approximately 1 week. He has had no residual symptoms and required no follow-up medical care.

A fumigator was shooting frozen Dowfume MC-2 canisters after placing them in tree holes. One canister sprayed some methyl bromide onto the fumigator. He bathed and changed clothes. He reportedly did not wear protective clothing. The next day he noticed a rash on his back and legs. He notified his employer who sent him to a physician whose diagnosis was acute contact dermatitis. A second follow-up investigation was conducted by telephone 6 months later. The fumigator stated that he had been given medication for his rash, which cleared up in 3 days; he missed no days from work. He did not experience any residual symptoms; therefore, he did not require follow-up medical care.

A fumigator was exposed to methyl bromide while he was cleaning his equipment. He had turned off the gas from the cylinder but apparently did not clear the line, and some gas escaped and burned his right leg below the knee. Five days after this burn, he reported it to his employer and was directed to consult a physician whose diagnosis was chemical burn with central purulent discharge and circumferential inflammation. This burn was cleansed and dressed, and he was given antibiotics. An attempt was made to conduct a second telephone follow-up investigation, but the fumigator could not be located.

A worker was wearing leather shoes while fumigating tree sites with Brom-O-Gas. As he pulled the probe from the soil, he tapped the probe against his foot to remove the soil. He later experienced symptoms of swelling and redness, and developed blisters on his foot. He did not seek medical attention until these symptoms were fairly well advanced. The physician's diagnosis was allergic reaction and chemical burn. The employer stated that Neoprene boots would be provided in the future. An attempt was made to contact the employee to conduct a second follow-up by telephone, but he could not be located.

DISCUSSION

There was a 45 percent decrease in the total number of occupational illnesses and injuries; from 42 cases in 1979 to 23 in 1980. Unfortunately, disability and hospitalization more than doubled. The main reason for this increase was the high number of days of work lost by 3 individuals. One worker lost 30 days from work and required 13 days of hospitalization, while the other was off work 2 months. A third worker lost 11 days from work and required 7 days of hospitalization. The remaining 23 persons collectively lost 8 days of work and did not require any hospitalization. The 3 most severe cases in 1980 were skin injuries; all 3 sustained second or third degree burns. Such burns are slow to heal, which accounts for the many days of disability. An attempt was made to contact these workers by telephone to conduct a follow-up investigation; however, only 1 of the 3 persons could be located. This worker complained of intermittent irritation and itching of his leg and foot. Of the remaining 20 persons, 15 were contacted, none of whom complained of any residual symptoms. Thirteen of

the 23 cases resulted from exposure to residual methyl bromide gas, 7 cases resulted from exposure while applying the material, and 3 cases resulted from exposure while cleaning or repairing equipment used during application. The underlying causes of the illnesses and injuries were carelessness and lack of adequate training. Most of the time, the proper protective equipment was not worn, or care was not taken to minimize exposure.

Tables are included to demonstrate the relationship associated with methyl bromide exposure and work activity, illness or injury type, disability incurred, and month and county of occurrence. The job categories reported at highest risk are field and commodity fumigators. These individuals may come in contact with concentrated methyl bromide. The most frequent illness type reported is systemic illness. The seriousness of the skin illnesses and injuries is not severe. This is indicated by the days of disability incurred, which most often range from 0-3 days. Methyl bromide is used year round; however, the majority of the illnesses and injuries are reported between the months of January to March and September to November. Counties reporting the greatest number of illnesses or injuries are Los Angeles and Orange Counties. This would reflect the fact that methyl bromide is used extensively in these counties as a soil commodity and structural fumigant. Data for the past five years are included for comparative purposes. A gradual decline can be observed in the total number of reported illnesses and injuries associated with methyl bromide exposure as well as the severity of them.

It would appear that several of the persons reporting illness or injury were not aware of the extreme hazard associated with methyl bromide exposure. For this reason, ongoing training concerning the proper safety practices to be exercised when using methyl bromide is essential. Protective clothing should be provided and worn. Equipment, including probes, hoses, and tarps, should be in good operating condition. Whenever possible, chloropicrin should be used in conjunction with methyl bromide as a warning agent. There is no specific antidote for methyl bromide poisoning, so prolonged exposure must be avoided. Workers should be reminded that if exposure occurs, they should remove all clothing from exposed areas, wash gently but thoroughly with soap and water, and change into clean clothing. The overexposed person should be taken to a physician or hospital emergency room immediately.

CONCLUSION

In conclusion, the majority of the illnesses and injuries could have been avoided had the persons been more aware of the hazards and taken appropriate precautions. There are stringent safety procedures that should be followed in accordance with federal and state regulations. To safeguard the work environment and protect the worker, precautions against undue exposure to methyl bromide should be taken at all times.

Occupational Illnesses and Injuries Due to Exposure
to Methyl Bromide as Reported by Type of Illness
and Amount Used From 1976 Through 1980^{1/}

<u>Type of Illness</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
Systemic Illnesses	14	23	22	27	27
Eye Injuries	1	7	5	6	7
Skin Injuries	<u>8</u>	<u>12</u>	<u>8</u>	<u>4</u>	<u>13</u>
Total	23	42	35	37	47
Amount Used (lbs) ^{2/}	6,064,630	8,371,274	5,538,020	6,552,667	4,182,217

^{1/}1979, 1978, 1977, and 1976 values included for comparative purposes.

^{2/}Usage reported according to the California Department of Food and Agriculture's Annual Pesticide Use Reports.

Occupational Illnesses and Injuries Due to Exposure
to Methyl Bromide as Reported by Job Category and
Type of Illness in 1976 Through 1980

	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>Total</u>
<u>Systemic Illnesses</u>	16	23	22	27	27	118

Job Category

Applicator, Other	0	0	0	0	1	1
Mixer/Loader (Aerial Application)	0	0	0	0	0	1
Gardener/Maintenance, Public Buildings	0	0	0	0	1	1
Structural, Fumigation	0	2	2	1	1	6
Structural, Other	0	0	0	0	5	6
Nursery/Greenhouse, Drift or Residue	0	0	2	1	0	3
Nursery/Greenhouse, Applicator or Mixer/Loader	0	0	0	0	2	2
Fumigation, Field	1	4	3	1	2	11
Fumigation, Commodity	0	3	6	9	8	25
Cleaner/Repairer	2	0	0	0	0	2
Packer/Processor	0	0	1	0	0	1
Warehouse/Transportation Worker	3	0	0	3	1	7
Fireman	4	13	0	5	6	29
Policeman/Ambulance Driver	3	0	5	7	0	15
Manufacturing/Formulation Worker	0	1	0	0	0	2
Other Type Pesticide Exposure	1	0	3	0	0	6

<u>Eye Injuries</u>	2	7	5	6	7	27
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Job Category

Gardener/Maintenance, Parks and Golf Courses	0	0	1	0	0	1
Structural, Fumigation	0	2	1	0	0	3
Structural, Other	0	0	0	0	1	1
Nursery/Greenhouse, Applicator or Mixer/Loader	0	0	0	1	1	2
Fumigation, Field	0	4	2	3	1	10
Fumigation, Commodity	1	1	1	2	3	7
Policeman/Ambulance Driver	0	0	0	0	0	1
Other Type Pesticide Exposure	1	0	0	0	1	2

<u>Skin Injuries</u>	8	11	8	4	13	44
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Job Category

Mixer/Loader (Ground Application)	0	0	0	0	1	1
Gardener/Maintenance, Parks and Golf Courses	0	0	0	0	1	1
Structural, Fumigation	1	1	0	0	2	4
Structural, Other	0	0	0	0	2	2
Nursery/Greenhouse, Applicator or Mixer/Loader	0	0	0	0	1	1
Fumigation, Field	5	4	6	1	3	19

Cont.

Occupational Illnesses and Injuries Due to Exposure
to Methyl Bromide as Reported by Job Category and
Type of Illness in 1976 Through 1980^{1/}

	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>Total</u>
<u>Skin Injuries</u>	8	11	8	4	13	44
Job Category						
Fumigation, Commodity	1	3	1	2	1	8
Field Worker	0	0	0	0	1	1
Cleaner/Repairer	1	0	0	0	0	1
Manufacturing/Formulation Worker	0	2	0	0	1	2
Other Type Pesticide Exposure	0	1	1	1	0	3
Self-Employed	0	1	0	0	0	1
Total Illnesses and Injuries	23	42	35	37	47	189

^{1/}1979, 1978, 1977, 1976 values included for comparative purposes.

Occupational Illnesses and Injuries Due to Exposure
to Methyl Bromide as Reported by Disability Status^{1/}
and Hospitalization in 1976 Through 1980

<u>Estimated Days of Disability</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
0 days	11	25	10	0	22
1-3 days	5	6	3	5	5
4-7 days	0	2	0	6	3
8-14 days	1	3	5	0	3
15-21 days	0	0	0	0	1
22-28 days	0	0	2	0	0
30 days	1	0	0	0	0
42 days	0	0	0	0	1
60 days	1 ^{2/}	0	0	0	0
Unknown	<u>4</u>	<u>6</u>	<u>15</u>	<u>26</u>	<u>12</u>
Total Estimated Days of Disability	109	49	117	50	127
<u>Estimated Days of Hospitalization</u>					
0 days	21	41	30	28	41
1-3 days	0	0	1	8	4 ^{3/}
4-7 days	1	0	1	1	1
8-14 days	1	1	0	0	0
Unknown	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>1</u>
Total Estimated Days of Hospitalization	20	8	6	19	13

^{1/}1979, 1978, 1977, and 1976 values included for comparative purposes.

^{2/}This individual was under a physician's follow-up care for 2 months during which period he was off work.

^{3/}Estimated by physician to be 7 days.

Occupational Illnesses and Injuries Due to Exposure
to Methyl Bromide as Reported by Month of
Occurrence in 1976 Through 1980^{1/}

<u>Month</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
January	1	14	2	5	1
February	2	3	1	3	8
March	0	1	7	6	3
April	1	6	2	3	3
May	1	3	2	1	2
June	0	0	1	0	3
July	1	1	6	1	5
August	1	6	1	4	3
September	12	2	2	2	7
October	2	2	7	2	4
November	0	3	3	4	7
December	<u>2</u>	<u>1</u>	<u>0</u>	<u>6</u>	<u>1</u>
Total	23	42	34 ^{2/}	37	47

^{1/}1979, 1978, 1977, and 1976 values included for comparative purposes.

^{2/}1 unknown date of occurrence.

Occupational Illnesses and Injuries Due to Exposure
to Methyl Bromide as Reported by County of
Occurrence in 1976 Through 1980^{1/}

<u>County</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
Alameda	0	1	0	0	2
Butte	3	0	2	3	0
Colusa	0	1	1	0	0
Contra Costa	0	0	1	0	1
Fresno	1	0	3	1	3
Humboldt	0	1	0	0	0
Imperial	0	0	0	0	1
Kern	0	4	0	0	1
Kings	0	0	0	0	1
Los Angeles	1	4	8	11	6
Madera	0	0	2	0	0
Merced	1	1	1	0	2
Monterey	0	1	0	0	1
Orange	5	1	2	8	2
Riverside	0	1	1	2	3
Sacramento	0	1	2	0	2
San Bernadino	0	3	3	1	0
San Diego	2	0	0	6	2
San Joaquin	2	2	0	2	0
Santa Barbara	0	0	2	0	8
Santa Clara	0	14	0	0	3
Sonoma	0	1	0	0	0
Stanislaus	1	2	2	1	3
Sutter	2	1	0	1	2
Tulare	0	0	0	1	1
Ventura	4	1	5	0	1
Yolo	0	1	0	0	2
Yuba	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	23	42	35	37	47

^{1/}1979, 1978, 1977, and 1976 values included for comparative purposes.

**ILLNESSES/INJURIES RELATED TO THE USE OF CAPTAN, DINOSEB,
METHYL BROMIDE, MEVINPHOS, AND PARATHION IN GRAPE VINEYARDS**

FIELD WORKERS

**Total Pesticide-Related Illnesses/Injuries
1982 - 1987**

<u>Pesticide</u>	YEAR											
	1982		1983		1984		1985		1986		1987	
	a	b	a	b	a	b	a	b	a	b	a	b
Captan only	0	3	1	4	0	7	0	7	0	2	0	0
Captan in combination*	0	6	0	8	0	6	0	5	0	4	0	7
Dinoseb	0	0	0	0	0	0	0	0	0	0	0	0
Methyl Bromide	0	0	0	0	0	0	0	0	0	0	0	0
Mevinphos	0	0	0	1	0	1	0	0	0	0	0	0
Parathion	0	0	0	0	0	0	0	0	0	0	0	0

PESTICIDE HANDLERS

**Total Pesticide-Related Illnesses/Injuries
1982 - 1987**

<u>Pesticide</u>	YEAR											
	1982		1983		1984		1985		1986		1987	
	a	b	a	b	a	b	a	b	a	b	a	b
Captan only	0	2	0	3	0	1	0	2	0	0	0	0
Captan in combination*	0	1	0	2	0	1	1	0	0	2	0	1
Dinoseb	0	2	2	1	1	0	1	0	1	0	0	0
Methyl Bromide	0	0	0	0	0	0	0	0	0	0	0	0
Mevinphos	4	0	0	0	0	0	0	0	2	0	0	2
Parathion	0	0	0	1	0	0	0	1	0	0	0	0

a - Number of systemic illnesses

b - Number of topical (eye and/or skin irritation) injuries

* - Captan was used in combination with other pesticides; no determination can be made as to the causal pesticide.